

NON-PUBLIC?: N
ACCESSION #: 9105220289
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Joseph M. Farley Nuclear Plant - Unit 2 PAGE: 1 OF 4

DOCKET NUMBER: 05000364

TITLE: Reactor Trip Due to Turbine Trip Caused by Reduction of Condenser Vacuum

EVENT DATE: 04/20/91 LER #: 91-004-00 REPORT DATE: 05/13/91

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 068

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:

50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:

NAME: D. N. Morey, General Manager - TELEPHONE: (205) 899-5156
Nuclear Plant

COMPONENT FAILURE DESCRIPTION:

CAUSE: SYSTEM: COMPONENT: MANUFACTURER:

REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

At 1617 on 4-20-91, the reactor tripped due to a turbine trip. The turbine trip was caused by a reduction of condenser vacuum. The valve which supplies instrument air to the air operated steam admission valve for the 2A steam jet air ejector (SJAЕ) was inadvertently closed by personnel working in the area. This caused the steam supply valve to close and resulted in the loss of condenser vacuum.

The turbine building system operator immediately restored air to the steam admission valve upon finding the air supply isolated. Vacuum recovered shortly after the trip occurred and no further problems were identified. The unit returned to power operation at 0426 on 4-21-91.

END OF ABSTRACT

Plant and System Identification

Westinghouse - Pressurized Water Reactor

Energy Industry Identification System codes are identified in the text as XX!.

Summary of Event

At 1617 on 4-20-91, the reactor tripped due to a turbine trip. The turbine trip was caused by a reduction of condenser vacuum. The valve which supplies instrument air to the air operated steam admission valve for the 2A steam jet air ejector (SJAЕ) was inadvertently closed by personnel working in the area. This caused the steam supply valve to close and resulted in the loss of condenser vacuum.

Description of Event

On 4-20-91 at approximately 1555, with the unit operating at approximately 100 percent power, the "Digital-Electro-Hydraulic (DEH) Trouble Alarm" annunciated and condenser vacuum was observed to be decreasing toward atmospheric pressure. Operations personnel were dispatched to the turbine building and FNP-2-AOP-8.0, (Partial Loss of Condenser Vacuum) was entered.

The operators manually ramped the unit down in an attempt to stabilize vacuum. The main control board gland steam pressure was noticed to be abnormally high; therefore, the steam glands were checked for proper operation on the main turbine and feed pump turbines. Local gland indications were normal. Personnel then checked the gland steam regulating valves; no problems were noted.

The second stage of the 2B SJAЕ was placed in service, and the condenser vacuum began to stabilize. Personnel checked the SJAЕs locally and noticed that the steam pressure for the 2A SJAЕ was zero. They also noticed that the 2A SJAЕ steam admission valve was closed, even though the valve, which is air operated, had a full open demand signal. Personnel checked the supply valves for steam to the SJAЕ supply line. The supply valves were found to be open.

At 1617, it was discovered that the air supply to the 2A SJAЕ steam valve was isolated. The air supply valve was opened, and the 2A SJAЕ was returned to service. At the same time the turbine tripped on low vacuum and the reactor tripped from the turbine trip. Reactor power at the time of the trip was 68 percent.

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It was determined that the valve which supplies instrument air to the air operated steam admission valve for the 2A SJAE had been inadvertently closed by personnel working in the area. The isolation of air caused the steam supply valve to close, which resulted in loss of function of the SJAE. This allowed air to be drawn into the condenser through the A SJAE exhaust line.

Following the trip, the operators implemented FNP-2-EEP-0 (Reactor Trip or Safety Injection) and FNP-2-ESP-0.1 (Reactor Trip Response), ensuring that the unit was safely in Mode 3 (Hot Standby). The unit was maintained in a stable condition.

Cause of Event

The reactor tripped due to a turbine trip. The turbine trip was caused by a reduction of condenser vacuum. The valve which supplies instrument air to the steam admission valve for the 2A SJAE was inadvertently closed.

It was determined that personnel were working in the immediate area of the SJAEs just before the trip occurred. This maintenance involved the use of a hose and extension cord routed in the vicinity of the instrument air isolation valve for the 2A SJAE. Re-creation of the maintenance activities demonstrated that during removal of the hose and/or the extension cord, the air valve could have been inadvertently bumped and closed or the hose or cord could have hung up on the valve which could have caused the valve to close. Personnel who were working in the area were not aware that they had closed the valve.

Reportability Analysis and Safety Assessment

This event is reportable because of the actuation of the reactor protection system. After the trip, the following safety systems operated as designed:

- main feedwater was isolated with flow control valves and bypass valves closed,
- auxiliary feedwater pumps started automatically and provided flow to the steam generators,
- source range nuclear instrumentation automatically energized,
- pressurizer heaters and spray valves operated automatically as required to maintain system pressure.

There was no effect on the health and safety of the public.

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Corrective Action

The turbine building system operator immediately restored air to the steam admission valve upon finding the air supply valve closed. Vacuum recovered shortly after the trip occurred and no further problems were identified.

This incident was discussed with the personnel involved. It was also discussed with supervisory personnel at subsequent meetings.

Additional Information

This event would not have been more severe if it had occurred under different operating conditions.

No similar events have been reported by FNP.

No components failed during this event.

ATTACHMENT 1 TO 9105220289 PAGE 1 OF 1

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J. D. Woodard Alabama Power
Vice President-Nuclear
Farley Project May 13, 1991 the southern electric system

10 CFR 50.73

Docket No. 50-364

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Joseph M. Farley Nuclear Plant - Unit 2
Licensee Event Report No. LER 91-004-00

Gentlemen:

Joseph M. Farley Nuclear Plant, Unit 2, Licensee Event Report No. LER 91-004-00 is being submitted in accordance with 10 CFR 50.73. If you have any questions, please advise.

Respectfully submitted,

J. D. Woodard

JDW/BHW:map 0185

Enclosure

cc: Mr. S. D. Ebnetter
Mr. G. F. Maxwell

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